

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 12-14 are requested to be canceled without prejudice or disclaimer.

Claims 15-17 are being added.

This amendment adds and deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1-11 and 15-17 are now pending in this application.

Allowable Subject Matter

On page 4 of the Office Action, Applicant appreciates the indication of allowable subject matter in claims 3 and 4.

Claim Rejections - 35 U.S.C. § 112

On page 2 of the Office Action, claims 12-14 were rejected under 35 U.S.C. § 112, ¶ 1, as failing to comply with the written description requirement. By this Amendment, Applicant has canceled claims 12-14 without prejudice or disclaimer. Accordingly, this rejection is moot.

Claim Rejections - 35 U.S.C. § 103

On page 2 of the Office Action, claims 1, 2, and 5-11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kurshige et al. (U.S. Patent No. 6,736,236) in view of Adler et al. (U.S. Patent No. 5,469,928).

Claim 1 recites that a steering apparatus for controlling left and right drive wheels of a vehicle comprises, *inter alia*, a driving force control section to control left and right driving forces of the left and right drive wheels individually in accordance with a running condition of the vehicle, a power assistance device to add a steering assistance force to a driver's steering input force input to a steering input device, a steering reaction force calculating section to calculate a steering reaction force acting on the steering input device in accordance

with a difference between the left and right driving forces, and a steering force correcting section to correct the steering assistance force so as to compensate the steering reaction force by varying the steering assistance force in accordance with a turning direction of the vehicle.

In the rejection of claim 1, it is asserted that the steering shaft reaction force torque detector 133 and force T-tran of Kurshige corresponds to the recited steering reaction force calculating section. Applicant respectfully disagrees with this assertion.

Kurshige discloses that a steering shaft reaction force torque Ttran is calculated as a sum of a steering torque Thdl and a assist torque Tassist (col. 6, lines 33-36). The steering shaft reaction force torque Ttran is also calculated as a sum of a road surface reaction force torque Talign representing a reaction force from a road surface on which a vehicle runs and a frictional torque Tfrp inside a steering mechanism (col. 6, lines 51-55). The steering shaft reaction force torque Ttran increases when the steering wheel is turned and decreases when the steering wheel is returned (col. 6, lines 64-67).

In contrast to claim 1, Kurshige fails to disclose or suggest calculating a steering reaction force acting on the steering input device in accordance with a difference between the left and right driving forces. Rather, Kurshige discloses calculating a steering shaft reaction force torque Ttran as a sum of a steering torque Thdl and an assist torque Tassist or as a sum of a road surface reaction force torque Talign and a frictional torque Tfrp, not in accordance with a difference between left and right driving forces. Indeed, since it is admitted that Kurshige fails to disclose driving means for the left and right drive wheels, Kurshige necessarily fails to disclose or suggest calculating a steering reaction force in accordance with a difference between the left and right driving forces.

Moreover, since Kurshige fails to disclose or suggest calculating a steering reaction force in accordance with a difference between the left and right driving forces, Kurshige also fails to disclose or suggest a steering force correcting section to correct the steering assistance force so as to compensate the steering reaction force by varying the steering assistance force in accordance with a turning direction of the vehicle. In other words, since the steering shaft reaction force torque Ttran of Kurshige is completely different than the steering reaction force calculated in accordance with the difference between left and right driving forces, Kurshige clearly fails to compensate for this force by varying a steering assistance force.

In fact, Kurshige does not even disclose or suggest compensating for the steering shaft reaction force torque Ttran. The reference to col. 7, lines 7-15 of Kurshige merely discloses that the electric motor 105 generates a predetermined torque to assist a torque generated by steering of a vehicle operator, which has nothing to do with compensating for a steering reaction force calculated in accordance with the difference between left and right driving forces.

Even if combinable, Adler fails to cure the deficiencies of Kurshige. Adler discloses a control unit 18 controls the output required by a driver available to wheels 4 and 6 via electric motors 8 and 10 (col. 6, lines 3-6). The control unit 18 generates a driving torque differential, which corresponds to a percentage wheel revolution differential between the outer wheel 4 and the inner wheel 6, based on the steering angle (col. 6, lines 6-10). As a result, the output and torque at the electric motor 8 coupled with the outer wheel 4 is increased, and the output of the electric motor 10 coupled with the inner wheel 6 is reduced (col. 6, lines 10-14).

Like Kurshige, Adler fails to disclose or suggest calculating a steering reaction force acting on the steering input device in accordance with a difference between the left and right driving forces, as recited in claim 1. Rather, Adler discloses calculating a driving torque differential, which corresponds to a percentage wheel revolution differential between the outer wheel 4 and the inner wheel 6, based on the steering angle, not in accordance with a difference between the left and right driving forces.

Adler also fails to disclose or suggest a steering force correcting section to correct the steering assistance force so as to compensate the steering reaction force by varying the steering assistance force in accordance with a turning direction of the vehicle. Adler, in fact, fails to disclose or suggest any type of compensation to the steering assistance force. Rather, Adler merely suggests altering the output and torque of the motors 6, 8 to the wheels 4, 6 based on wheel angle.

Accordingly, even if combinable, claim 1 is patentably distinguishable from the combination of Kurshige and Adler. Claims 2 and 5-12 are patentably distinguishable from the combination of Kurshige and Adler for reasons analogous to claim 1.

Applicant believes that the present application is in condition for allowance. Favorable reconsideration of the application is respectfully requested.

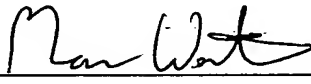
Examiner Lum-Vannucci is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. § 1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date: February 22, 2007

FOLEY & LARDNER LLP
Customer Number: 22428
Telephone: (202) 295-4747
Facsimile: (202) 672-5399

By  Reg. No. 48,892

by Martin J. Cosenza
Attorney for Applicant
Registration No. 48,892